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55. (Twice amended) The method of claim 54 wherein the substrate is a silicon substrate and wherein the mesoporous film is a low-k dielectric film having a dielectric constant of less than approximately 2.5.

58. (Amended) A process to form mesostructured films, comprising:

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(a) preparing a precursor sol containing a soluble source of a metal oxide, water, an organic solvent, surfactant and acid or base catalyst, wherein the surfactant concentration c_0 [is much less than] does not exceed the critical micelle concentration and the surfactant is present as free surfactant; and

(b) depositing the precursor sol on a substrate wherein evaporation of solvent and water causes the formation of said mesostructured films on the substrate surface.

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62. (Amended) The process of claim 58 wherein the soluble source of metal oxide, water and organic solvent form an aqueous solvent in which the water and the soluble source of metal oxide are provided in a superstoichiometric amount and wherein the aqueous solvent and the catalyst are provided in amounts that maintain a hydrolyzed precursor sol while avoiding gelation or precipitation.

Please add the following new claims:

new matter
--72. The method of claim 42 wherein the mesoporous film has an optical dielectric constant as low as approximately 1.34.

73. A process to form mesostructured films, comprising:

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(a) preparing a precursor sol containing a soluble source of a metal oxide, water, a solvent, surfactant, and catalyst; and

(b) depositing the precursor sol on a substrate wherein evaporation of solvent and water causes the formation of said mesostructured films on the substrate surface wherein said mesostructured films are identified by at least one XRD peak in the range 2θ -2°-6° hexagonal, cubic, or lamellar electron diffraction patterns.

74. A process to form mesostructured films, comprising:

(a) preparing a precursor sol containing a soluble source of a metal oxide, water, a solvent, surfactant, and catalyst, wherein the surfactant concentration c_0 is approximately at or above the critical micelle concentration and the surfactant is not present as free surfactant; and

(b) depositing the precursor sol on a substrate wherein evaporation of solvent and water causes the formation of said mesostructured films on the substrate surface wherein said